REMARKS

The Office Action dated June 30, 2009 has been received and carefully noted. The above amendments and the following remarks are being submitted as a full and complete response thereto. Applicants respectfully request reconsideration and withdrawal of the outstanding rejections.

Claims 55-94 are pending in this application, with claims 51-54, 60-62, 67, 68, and 70-93 having been withdrawn from further consideration. Claims 55-59, 63-66 and 69 were rejected. By this Amendment, claims 55, 64, 69 have been amended, and claim 94 has been newly added. Support for the amendments may be found in the specification as originally filed, and support for new claim 94 may be found at least at page 10, lines 6-13.

Applicants submit that no new matter is added.

Claim Objections – Minor Informalities

Claims 55, 58, and 65 are objected to for informalities.

Claim 55 is objected to because it includes "and/or" in part (a). Without conceding the propriety of this objection, Applicants have amended claim 55.

Claims 58 and 65 are objected to for including non-elected species. However, Applicants submit that it is not improper for these claims to encompass non-elected species, and Applicants are under no obligation to cancel all non-elected species from the claims. Claims that are generic for the elected regulating protein and the elected heterologous protein are pending. In the event that a generic claim is considered allowable, the non-elected species of regulating proteins/heterologous proteins may be

subject to rejoinder, and Applicants have maintained the non-elected species in these claims to be able to take advantage of the possibility of rejoinder.

Accordingly, in view of the amendments and remarks set forth above, Applicants respectfully request withdrawal of the objection to claims 55, 58, and 65.

Claim Rejections – *35 U.S.C. §112*

Claims 64-66 and 69 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for the reasons set forth in paragraph 7 of the Office Action. Applicants respectfully traverse this rejection.

Without conceding the propriety of this rejection, Applicants have amended claims 64 and 69 as set forth above.

Accordingly, Applicants respectfully request withdrawal of the § 112 rejection of claims 64-66 and 69.

Claim Rejections – *35 U.S.C. §102*

Claims 55-59 and 63 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Poul et al. (*Journal of Biomolecular Screening* 7 (1):57-61, 2002, hereinafter "Poul"). Applicants respectfully traverse this rejection.

Poul is cited for disclosing a cellular aequorin-based high throughput screening of G protein-coupled receptors (GPCRs). Poul discloses that CHO-K1 cells are transfected with a plasmid encoding the apoaequorin gene with a mitochondrial targeting signal and Gα16. The CHO-K1 cells are also transfected with expression plasmids encoding three different human GPCRs, melanin-concentrating hormone type

1 receptor (MCH1), orexin type 2 receptor (Ox2), and seratonin type 2B receptor (5-HT2B). The cells are loaded with the apoaequorin cofactor coelenterazine, diluted in assay buffer, and injected into plates containing the samples to be tested. Results are expressed as relative light units.

Poul discloses transfecting cells using a bicistronic plasmid containing aequorin, a mitochondrial targeting signal, and Gα16, and then further transfecting these cells with a plasmid containing one of three GPCRs.

However, Poul fails to disclose or suggest that either plasmid contains a fusion protein sequence including an aequorin sequence and at least one cellular effector sequence. In Poul, the plasmid encoding a cellular effector sequence was used to transfect a cell line that had previously been transfected with a bicistronic plasmid containing Gα16 (a G-protein alpha subunit) and an aequorin gene linked to a mitochondrial targeting signal. The fact that the plasmid containing the aequorin gene was bicistronic, i.e., contained two separate units of DNA that each encode one protein, indicates that ***the plasmid of Poul did not include a fusion protein***. Fusion proteins are created by joining two or more genes that encode separate proteins, and translation of a fusion protein results in a single polypeptide with functional properties derived from each of the original proteins. Even if the bicistronic plasmid of Poul is construed to include a fusion protein of aequorin and Gα16, Applicants submit that Gα16 is a subunit of a protein that links plasma membrane receptors, not a cellular effector sequence.

Accordingly, Applicants submit that Poul fails to disclose or suggest the presently-claimed screening method, which includes the step of transfecting a cell line

with an expression vector containing a fusion protein sequence including an aequorin sequence and at least one cellular effector sequence.

In view of the amendments and remarks set forth above, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 55-59 and 63 under 35 U.S.C. § 102(b) over Poul.

Claim Rejections – *35 U.S.C. §103*

Claims 64 and 65 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Poul. Applicants respectfully traverse this rejection.

Poul is cited for the reasons set forth above with respect to the rejection under 35 U.S.C. § 102(b). The Office Action admits that Poul does not disclose or suggest that the cell line that is transfected is engineered so as to express a heterologous native or chimeric protein, but takes the position that there would have been a reasonable expectation of success to do so, and therefore concludes that claims 64 and 65 are obvious.

However, Applicants submit that Poul fails to disclose or suggest the presently-claimed screening method, which includes the steps of transfecting a cell line with an expression vector containing a fusion protein sequence including an aequorin sequence and at least one cellular effector sequence.

In view of the amendments and remarks set forth above, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 64 and 65 under 35 U.S.C. § 103(a) over Poul.

Claim 66 is rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Poul in view of Langer et al. (*Molecular Endocrinology* 16(5):1089-1096, 2002, hereinafter "Langer"). Applicants respectfully traverse this rejection.

In addition, Applicants believe that the Office Action may have intended to reject claim 69 as allegedly being unpatentable over the combination of Poul and Langer. Applicants respectfully request that the status of claim 69 be clarified in the next Office Action.

Poul is cited for the reasons set forth above with respect to the rejection under 35 U.S.C. § 102(b).

Langer is cited for disclosing construction of a chimeric human VPAC1/VPAC2 GPCR, expression of the chimeric receptor in CHO cells co-expressing aequorin, and measurement of VIP-mediated calcium increase by a functional assay based on luminescence produced after coelenterazine oxidation. The Office Action indicates that there would have been a reasonable expectation of success to transfect the cells first with an expression vector encoding a GPCR or a chimeric GPCR, followed by screening an agonist of a GPCR or a chimeric GPCR using a cellular aequorin-based high throughput screening method. The Office Action therefore concludes that claim 66 is obvious.

However, Applicants submit that the combination of Poul and Langer fails to disclose or suggest the presently-claimed screening method, which includes the step of transfecting a cell line with an expression vector containing a fusion protein sequence including an aequorin sequence and at least one cellular effector sequence.

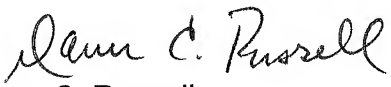
In view of the amendments and remarks set forth above, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 66 under 35 U.S.C. §103(a) over Poul in view of Langer.

CONCLUSION

Applicants respectfully submit that this application is in condition for allowance and such action is earnestly solicited. If the Examiner believes that anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below to schedule a personal or telephone interview to discuss any remaining issues.

In the event that this paper is not being timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to Counsel's Deposit Account Number 01-2300, referencing Docket Number 026073-00008.

Respectfully submitted,



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